

REMARKS

This is in response to the non-final Official Action currently outstanding with regard to the present application.

Claims 1-18 were pending in this application at the time of the issuance of the currently outstanding Official Action. By the foregoing Amendment, Claims 1, 3-6, 10, 17 and 18 have been amended, Claims 2 and 14-16 have been canceled, without prejudice, and the specification has been extensively amended. No claims have been added or withdrawn. Accordingly, upon the entry of the foregoing Amendment, Claims 1, 3-13 and 17-18 as amended hereinabove will constitute the Claims under active prosecution in this application.

The claims of this application are reproduced above including appropriate status identifiers and showing the Amendments being made as required by the Rules.

More particularly, in the currently outstanding Official Action the Examiner has:

1. Acknowledged Applicants' claim for foreign priority under 35 USC §119 (a)-(d) or (f), and confirmed the receipt of the required copies of the priority documents by the United States Patent and Trademark Office;
2. Failed to provide the Applicants with an indication concerning the acceptability of the drawings as filed with this application on 14 April 2004 – **An indication concerning the acceptability of the drawings filed as part of the above-identified application in response to this communication is respectfully requested;**

3. Acknowledged his consideration of the Information Disclosure Statements filed in this application on 14 April 2004 and 22 June 2004 by providing the Applicants with a copies of the Forms PTO-1449 that accompanied that Statements duly signed, dated and initialed to confirm the consideration of the art listed therein – **Applicants respectfully note that the Form PTO-1449 date stamped by the United States Patent and Trademark Office on 14 October 2005 provided to Applicants with the currently outstanding Official Action does not relate to the above-identified application even though it refers to the United States Serial Number of this application. As will be noted by the Examiner, the inventor identified in that Form PTO-1449 is not the same as any of the inventors of this application. Hence, it is believed that the Applicant Steven R. Knight misidentified his application in the Form PTO-1449 date stamped by the United States Patent Office on 14 October 2005 that has been included in the record of this application;**
4. Objected to the disclosure of the specification as filed on the basis that it appears to contain numerous minor typographical and/or translation phraseology errors, and requested Applicants to review the present specification in detail and to correct all such errors that are noted – **Applicants now have reviewed the specification of this application in detail as requested by the Examiner and the extensive amendments to the specification set forth hereinabove correct all of the minor errors that have been noted in that review;**
5. Rejected Claim 4 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention on the basis that the surface specified in the claim is not clearly defined – **By the foregoing Amendment, the phraseology of Claim 4 has been revised in a manner that is believed to overcome this ground of rejection.**

6. Rejected Claims 5 and 6 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention on the basis that the recited limitation “functional layer” lacks appropriate antecedent basis – **By the foregoing Amendment, the phraseology of Claims 5 and 6 has been revised in a manner that is believed to overcome this ground of rejection.;**
7. Rejected Claims 1-3, 6-7, 9-11 and 14-18 under 35 USC §102(b) as being anticipated by Tominaga et al. (US Patent No. 5,569,517);
8. Rejected Claims 4-5, 8 and 12-13 under 35 USC §103(a) as being unpatentable over Tominaga et al. (US Patent No. 5,569,517) as applied to Claim 1 further in view of Jung (US Patent No. 5,516,568).

No further comment regarding items 1-6 above is deemed to be required in these Remarks.

With respect to items 7 and 8, Applicants respectfully submit that as hereinabove amended the claims of this application are clearly neither anticipated, nor obvious to one of ordinary skill in the art as of the time that the invention(s) therein claimed were made, for the following reasons.

(1) Each of the independent claims of the present application now has been amended so as to specify “Pits, corresponding to the recorded data, shorter than the resolution limit of an optical system in the reproducing apparatus”.

The Tominaga et al. reference, in Figures 1 and 2, shows pits 21 shorter than the diameter ϕ_0 of a reading light beam. Nevertheless, Applicants respectfully submit that this is insufficient to anticipate the feature of the amended claims that specifies “pits, corresponding to the recorded data, which are shorter than a resolution limit of an optical system of a reproducing apparatus,” for the following reasons.

The beam spot diameter in devices of the type herein claimed is generally and conventionally denoted by those skilled in the art as λ/NA (λ : being the wavelength of read light beam, and NA :being the numerical aperture). In contrast, the typical optical resolution limit is generally denoted by $\lambda/(4NA)$, that is as being equal to one quarter (1/4) of the beam spot diameter. Accordingly, when one skilled in the art views the pits shown in Figures 1 and 2 of Tominaga et al. bearing the foregoing facts in mind, it clearly appears that the pits depicted by Tominaga et al are longer than the optical resolution limit. In this regard it also is to be recognized that the Tominaga et al. reference does not explicitly teach pits shorter than the resolution limit of an optical system of a reproducing apparatus.

In contrast, however, the present specification, at page 39, last paragraph to page 40, paragraph. 3, clearly describes the use of pits $< 0.14 \mu\text{m}$, that is shorter than the optical resolution limit, in securing sufficient signal quality (optical resolution limit: $0.16 \mu\text{m} = 408 \text{ nm} / (4 \times 0.65)$). In particular support of this assertion, please see the present specification at page 39, paragraph. 2.

Accordingly, Applicants respectfully submit that the Examiner’s rejection of the present application as being anticipated by the Tominaga et al reference is misplaced and should be withdrawn in response to this communication. A decision so holding is respectfully requested.

(2). Irradiation of a light beam from above the reproducing layer.

Applicants respectfully call attention to the fact that the claims of this application directly and/or indirectly clearly recite the irradiation of the light beam is to be from above the reproducing layer on the substrate.

The feature that the irradiation of a light beam is to be from above the reproducing layer has been found to be especially effective in reading the claimed pits that are shorter than the resolution limit as discussed above. This is clearly demonstrated by a comparison of example 1 and the comparative examples (see the present specification, page 40, last paragraph through page 41, paragraph 1).

Further, as described at page 28, last paragraph to page 29, paragraph 2 and shown in Figure 5 of the present specification, the feature that the pits, corresponding to the recorded data, are shorter than the resolution limit of an optical system in the reproducing apparatus is not restrained in the present invention by the thickness of the reproducing layer. The present invention is therefore capable of improved super-resolution capability; and the fact that the irradiation of a light beam comes from above the reproducing layer improves the resolution limit when the layer thickness is unchanged.

Still further, Applicants have noted that in comparing Claim 1 of the present application with the Tominaga et al reference, the Examiner has asserted that the protective layer 10 of Tominaga et al. corresponds to the substrate of claim 1. See the currently outstanding Official Action at page 3 in the paragraph starting with "Regarding Claim 1. It is to be noted in this regard, however, that Tominaga et al. includes a substrate 2 separately from the protective layer 10. Applicants respectfully submit in this regard that it is the substrate 2 that the Examiner should regard as corresponding to the substrate of claim 1 in his comparisons of the present claims with the Tominaga et al reference and that when the correct comparison is made in view of the foregoing discussion it is apparent that this application is neither anticipated nor unpatenatably obvious over the art currently relied upon by the Examiner. In the latter regard, Applicants respectfully submit that in the field of the optical data recording mediums it is so well known as to require no further support in these Remarks that what is termed as being a "substrate" is clearly distinct from what is termed as "protective layer".

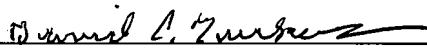
Applicants also note for the record that the foregoing amendments to the claims of this application are supported in the present specification at page 38, paragraph 1 through page 41, paragraph 1 as well as in Figure 5. In addition, it is respectfully noted that Applicants now have elected to prosecute claims directed to "read-only" media in this application. Accordingly, a divisional application directed to the writeable media heretofore included in this application is being filed concurrently herewith.

For each and all of the foregoing reasons, entry of the foregoing Amendment, reconsideration and allowance of all of the claims present in this application after the entry of this Amendment in response to this communication are respectfully requested.

Applicant also believes that additional fees beyond those submitted herewith are not required in connection with the consideration of this response to the currently outstanding Official Action. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge and/or credit Deposit Account No. 04-1105, as necessary, for the correct payment of all fees which may be due in connection with the filing and consideration of this communication.

Respectfully submitted,

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SIGNATURE OF PRACTITIONER

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